REMARKS/ARGUMENTS

Status of the claims

Claims 1-20 are currently pending. Claims 1, 8, 9, 13, 14, 15 and 16 are amended. Claims 17-20 are withdrawn in response to a restriction requirement. No new matter is added. Entry of the amendment and reconsideration is requested.

The rejections under 35 U.S.C. § 112, second paragraph

Claims 14-16 are rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 is amended to delete elements a.ii., a.iv., and the phrase "with a heat shock protein 90A polypepetide (HSP90A) in the presence of a test compound".

Claims 15 and 16 are amended to delete the phrase "an contiguous amino acid sequence that selected from the amino acid sequence", and now recite:

> "contacting a polypeptide comprising the amino acid sequence of SEQ ID NO: 51 or a polypeptide fragment comprising a portion of SEQ ID NO: 51, wherein the polypeptide fragment comprises both of NHSCDPN (SEQ ID NO:52) and GEELTICY (SEQ ID NO:53)".

Support for this amendment is found, for example, at [0010] and [0069] of the Substitute Specification.

The claims are further amended to recite that "the polypeptide or polypeptide fragment binds to S-adenosyl-L-methionine". Support for this amendment is found, for example, at [0073].

Withdrawal of the rejections is respectfully requested.

The rejections under 35 USC § 112, first paragraph

Claims 1-14 are rejected for allegedly failing to comply with the written description requirement. Specifically, the Examiner asserts that the specification does not provide support for variants of ZNFN3A1 (SEQ ID NO: 51) that have the required methyltransferase activity. The rejection is respectfully traversed for the following reasons.

As an initial matter, claims 1, 8, 9, 13, and 14 are amended to delete reference to "80% homology" and now recite "at least about 95% identity" to SEQ ID NO:51. Support for this amendment is found, for example, at [0052]. Further, elements a.ii. and a.iv., directed to polypeptides comprising amino acid mutations and polypeptides encoded by polynucleotides that hybridize under stringent conditions, respectively, have been deleted.

Claims 1, 8, and 9 are further amended to clarify that the polypeptide having at least 95% identity to SEQ ID NO:51 comprises both the SET domains (SEQ ID NOs: 52 and 53) and has methyltransferase activity for histone H3. Support for this amendment is found, for example, at [0010] and [0058].

Polypeptides sharing a high level of identity (95% or more) are likely to have equivalent functions. Moreover, the claimed polypeptides now comprise the SET domains (SEQ ID NO: 52 and 53). The specification discloses that the SET domains may be conserved in the amino acid sequence of mutant proteins to maintain the methyl transferase activity (see [0044]). The specification also discloses that proteins lacking one of the two SET domains do not interact with the methyl donor (see [0166]). Thus, the specification discloses a correlation between the structure and function of the claimed polypeptides. Therefore, it is clear that the claims, as amended, satisfy the written description requirement.

Claims 13 and 14 are similarly amended, but now recite that the polypeptide has a binding activity to a heat shock protein 90A polypeptide. Support for this amendment is found, for example, at [0063].

In summary, the claims, as amended, are supported by the written description. Withdrawal of the rejection is respectfully requested.

The rejections under 35 USC § 102(b)

1) Claims 1-4 are rejected as allegedly anticipated by Santos-Rosa (Santos-Rosa, H., et al., Nature, 407-411, 2002). Specifically, the Examiner asserts that Santos-Rosa teaches a methyltransferase activity where the substrate is histone 3, and the methylation region is lysine 4 using SAM as a cofactor. The rejection is respectfully traversed for the following reasons.

As an initial matter, claim 1 is amended as described above to delete reference to polypeptides having one or more amino acid substitutions, deletions or insertions. Santos-Rosa discloses SET domain proteins isolated from yeast. However, the reference does not disclose a polypeptide comprising the amino acid sequence of SEQ ID NO:51, or a polypeptide having at least 95% identity to SEQ ID NO:51, as recited in claim 1, as amended. Therefore, Santos-Rosa does not anticipate the claims. Withdrawal of the rejection is respectfully requested.

2) Claims 1, 2, 4, 6-8 and 12 are rejected as allegedly anticipated by WO2002/092002. The rejection is respectfully traversed for the following reasons.

WO2002/092002 discloses a completely different protein (RIZ) from ZNFN3A1. Thus, the reference does not disclose a polypeptide comprising the amino acid sequence of SEQ ID NO:51, or a polypeptide having at least 95% identity to SEQ ID NO:51, as recited in independent claims 1 and 8, as amended. Therefore, the reference does not anticipate the claims. Withdrawal of the rejection is respectfully requested.

The rejections under 35 USC § 102(e)

Claims 1, 2, 4, 8 and 15 are rejected as allegedly anticipated by Huang (US 6,955,905). The Examiner asserts that Huang discloses a polypeptide that comprises SEQ ID NO:52, and that Huang discloses the claimed methods. The rejection is respectfully traversed for the following reasons.

First, Huang does not disclose a polypeptide comprising SEQ ID NO:53, as recited in claims 1, 8, and 15, as amended. Thus, because the claimed polypeptides are structurally different than the polypeptides of Huang, the reference does not anticipate these claims.

Second, Huang does not provide an enabling disclosure. Huang discloses polypeptides that contain PR and SET domains. However, Huang does not provide any experimental data showing that the disclose polypeptides actually have methyltransferase activity. For instance, columns 22 through 27 of Huang, cited in the Office Action, merely disclose prophetic methods for identifying compounds that modulate methyltransferase activity. Further, Examples I-XII disclose the identification of cDNAs and EST sequences that contain PR

or SET domains, but do not disclose any activity associated with the encoded polypeptides. Thus, the cited reference fails to demonstrate experimentally that the disclosed polypeptides have any methyltransferase activity, and therefore does not provide any connection between the structure and function of the disclosed polypeptides.

Further, Huang does not anticipate claim 15, which is directed toward a method of screening for a compound for treating colorectal cancer or hepatocellular carcinoma. Example XIII of Huang discloses a prophetic example describing a method for demonstrating the ability of a PFM/SET nucleic acid to modulate cell proliferation. However, Huang fails to demonstrate any connection between the disclosed polypeptides and cell proliferation or cancer, or provide any data to show that they can be used to measure anti-proliferative activity or screen for anti-cancer agents.

For the above reasons, Huang does not anticipate the claims, as amended. Withdrawal of the rejection is respectfully requested.

The rejections under 35 USC § 103

Claim 16 is rejected as allegedly obvious over Huang (cited above). The rejection is respectfully traversed for the following reasons.

As an initial matter, claim 16 is amended to recite that the kit comprises a polypeptide fragment that comprises SEQ ID NO:53. Thus, the claimed polypeptides differ from the polypeptides disclosed by Huang. Further, Huang does not provide any guidance to one of skill to arrive at the claimed polypeptides. Huang discloses several SET domain cDNAs and peptides, none of which contain SEQ ID NO:53. Therefore, it would not have been obvious to assemble the kit as claimed based on the disclosure of Huang. Withdrawal of the rejection is respectfully requested.

Double Patenting

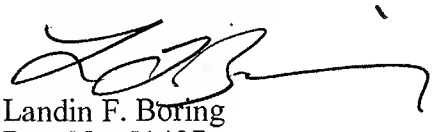
Claims 1, 4, 6-8, 12, 15 and 16 are provisionally rejected as allegedly obvious over claims 1-3 of copending Application No. 11/912,860, which is allowed and assigned U.S. Patent No. 7,968,281. Applicants respectfully request this rejection be held in abeyance until the indication of allowable subject matter in the instant application.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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